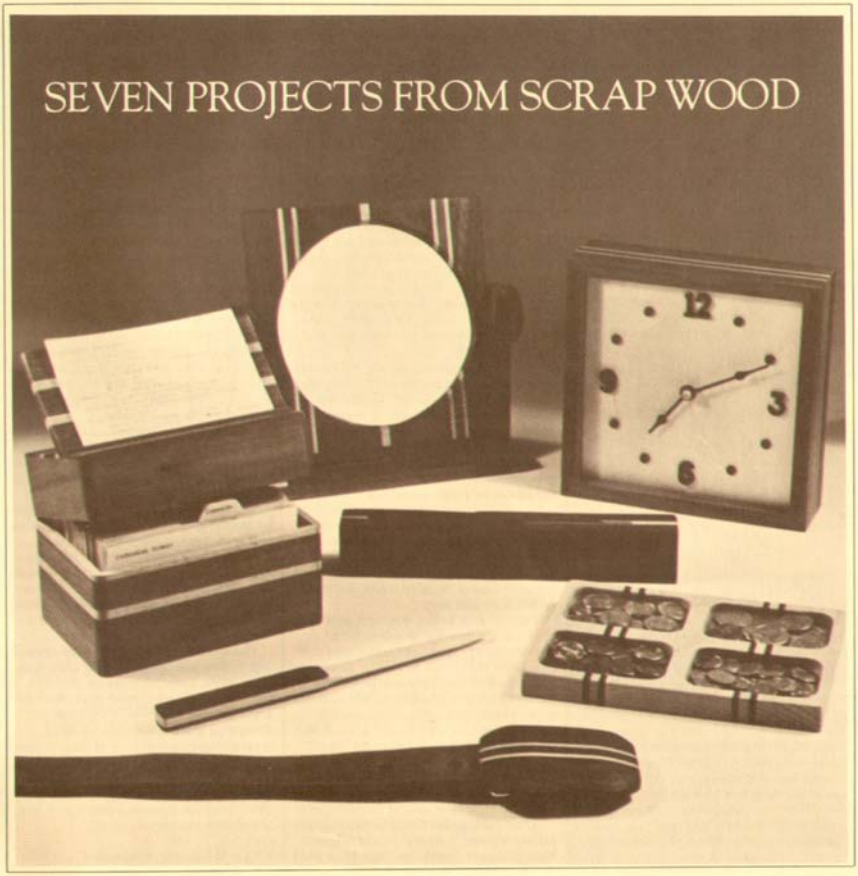
NUMBER TEN NOTES FROM THE SHOP

Woodsmith™



Woodsmith

Number Ten July, 1980

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Talking Shop

ABOUT THIS ISSUE

I usually like to have a theme for each issue. This time I couldn't decide whether the theme should be: projects from scrap wood, or projects to make and sell. When you get down to it, it could be either . . . or both. (You see, I still can't decide.)

The idea of projects from scrap appeals to me. And, it presents an interesting challenge. Most of the time I decide what I want to build, and then buy enough wood to build it.

But with scrap wood projects the procedure is just the opposite. Those little pieces of wood (they're far too valuable to be burned in the fireplace) are just sitting there, challenging me to come up with a way to put them to good use.

By their very nature, many pieces of scrap are either too short or too narrow to be much good for building anything.

That's where laminating comes into play. If several narrow pieces are glued together, you have a usable piece of wood.

This idea of laminating actually started with the letter opener shown on page 7. The letter opener is my favorite project in this issue. As usual, it's the smallest and easiest to make. But it's also very useful.

As far as projects you can make and sell, I tried to come up with items that were practical . . . useful. Given the current economic climate, it seems to me that it would be easier to sell something that could be used everyday, rather than something that was only (or mostly) decorative. So, that's the basis for these projects.

A NEW COLUMN

Starting with this issue we've added a new column: Tools of the Trade (page 10). I selected the two products shown because I used them to make several projects in this issue.

This column is not intended to show only what's new for woodworkers. Rather, it will highlight some products and tools that don't get much attention.

I've been trying to decide how far to go with the idea of a product endorsement. I would just as soon avoid a specific endorsement. What I think I should do is just present information about the product, along with my opinions of the pros and cons. In effect, here's a product you may be interested in, and here's one guy's opinion of it.

After having said that, I'd like to give a strong vote of approval to the *Wagner* Safe-T-Planer shown on page 10. I used this tool for the first time while building some of the projects in this issue. It's a good, useful, quality tool. As are many tools. But it's one of the few that includes a rather complete information booklet about *how to use it*. Plus, instructions on how to sharpen it, and a grinding wheel to do the sharpening.

That's the way I think tools should be sold. And it was very refreshing to see a company that does it that way.

CHANGES, NOTES AND THOUGHTS

• RADIAL-ARM SAW TECHNIQUES. Several readers have called or written to cast their vote for more information on the radial-arm saw. Starting with this issue, I'm doing just that. For example, the cutting sequence for the rabbet/dado joint is shown for both the radial-arm and table saw.

In future issues I hope to go back to some of the other joinery techniques that have appeared and give the cutting procedure for a radial-arm saw.

For individual projects, where it's not possible to include drawings for both methods, I will try to include radial-arm saw instructions in the text.

• NO MORE POSTAGE CHARGE. I've decided to drop the charge for postage and handling when ordering back issues. At first we were sending out all back issues via first class mail. And, naturally, postage costs were enormous.

But I'm finally learning more about the Post Office and the different rates and classes of mail. So, we can send out back issues at the second class postage rate, which is much less expensive.

Anyway, no more extra fee for postage or handling. (But you still have to pay for the back issues themselves . . . I'm generous, but not that generous.)

• MASTHEAD CHANGES. Some people read all of the credit lines at the end of a movie. I read mastheads on magazines. With this issue our masthead shows two changes.

I had been doing all of the art myself, but it was just getting to be too much. So, I made some *very rough* sketches of the drawings and turned them over to Dave Briggs, a freelance illustrator. Someway Dave figured out what I wanted and came up with some very good drawings.

The other change involves Ted Kralicek. I'll talk more about him in the next issue (as soon as I learn how to pronounce his name).

NEXT MAILING: September 1, 1980.

Tips & Techniques

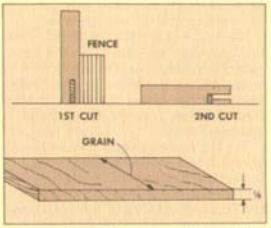
CUTTING SPLINES

Your article on the Waste Basket (*Woodsmith* Number Seven) tells us to "rip" the splines. The orientation of the grain in the illustration indicates that you ripped down the length of a board to get the spline.

You will find that splines are much stronger if they are cut so the grain goes across the spline, *i.e.* so the shearing stress between the mitered surfaces is across the spline's grain. Splines cut in this manner are very fragile *until* they are braced by the splinting action of the mitered pieces.

Basil Wentworth
Bloomington, Indiana

You're absolutely right. The drawing below shows the method for cutting a spline so the grain runs across the miter. The board is set on end and cut as if making a tenon. The length of the finished spline then corresponds to the width of the board. It may be necessary



to cut several splines to fill the entire length of the groove. As I mentioned in the article on Miter and Spline Joinery in that same issue, I usually "rip" splines from ½" birch plywood (which is why I used the word "rip"). Birch plywood is an excellent material for splines, and is inherently stronger than solid wood splines.

CHAMFERING DOWELS

Instead of purchasing a dowel pointer (or dowel reveler, as it's also called), I point dowels on the side of a grinding stone mounted to my wood turning lathe. I have pointed dowels as short as a half-inch using this method.

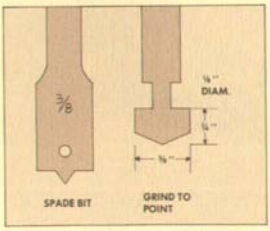
Wm. V. del Solar
Westmont, Illinois

It's often helpful to "point" or chamfer the edges of dowels used for joinery so they don't get hung up on the rim of the hole. It's probably okay to use the side of a grinding wheel for this. But metal tools should not be sharpened on the side of a grinding wheel.

PICTURE FRAME ROUTING BIT

I made my own picture frame router bit (mentioned in T&T, 10) by grinding down a ¾" spade bit. Once ground to the shape shown in the drawing, it's used in a drill press to cut the key-shaped hole for hanging.

Michael B. Carica
Duluth, Minnesota



ANOTHER GLUE BOTTLE

The four-ounce bottle that rubber cement comes in makes an excellent holder for glue. It's small and easy to use, and has its own brush mounted on the cap.

I used this bottle for my small gluing jobs. As long as it's "topped off" so the glue covers the brush, the brush doesn't have to be cleaned.

Don Wilburn
Prospect, Tennessee

SLOT MORTISE

After reading the article on making a slot mortise (*Woodsmith* Number Eight), I decided to send in this tip for making a slot mortise.

I don't have a drill press for drilling the holes for the slot. Instead, I use a doweling jig. The jig keeps the holes straight and automatically centers them, thus eliminating the need of marking a center line before drilling.

To clean out the slot, I use my radial-arm saw. I mount a drill chuck on the motor shaft and use a ¼" straight router bit. The motor is rotated so the shaft (and bit) is perpendicular to the saw table. Then I follow the same procedure shown in the article to clean out the slot.

Jerry Busch
Kennebec, South Dakota

INSTALLING BAND SAW BLADE

When installing a new band saw blade, the task is made much easier if you place the blade on the top pulley and secure it with a spring clamp. This allows you to position the rest of the blade with one hand and tighten the tension with the other.

Donn Parker, Woodchip
Sparta, Illinois

BRANDING IRONS

I have been making children's toys for some years. Now I am trying to obtain a brand whereby I can burn my own brand into the bottom of the toys. Can you suggest where I might find such an electrical device

E. W. Bateman
Phoenix, Arizona

Here are three sources for branding irons for woodworkers:
- *Norcraft Custom Brands, Dept. W-10, Box 277F, So. Easton, MA 02375. (Write for info and sample; give size, and use.)*
- *Craftmark Products, Inc., Dept. W-10, P.O. Box 6308, Marietta, GA 30065 (Free literature.)*
- *Woodcraft Supply, 313 Montvale Ave., Woburn, MA 01888. (Catalog, $1.)*

SEND IN YOUR IDEAS

We invite you to share your woodworking tips and techniques with other readers of *Woodsmith*. We will pay a minimum of $10 for a tip, and $15 or more for a special technique. All material submitted becomes the property of Woodsmith Publishing Co. Upon payment, you give *Woodsmith* the right to use the material in any manner for as long as we wish.

If your idea involves a drawing or photo to explain it, do your best and, if necessary, we'll make a new drawing, or build the project or jig and photograph it. (Any drawings or photos submitted cannot be returned.)

Send your ideas to: Woodsmith, Tips & Techniques, 2200 Grand Ave., Des Moines, Iowa 50312.

Desk Clock

A TIMELY PIECE FOR DESK OR WALL

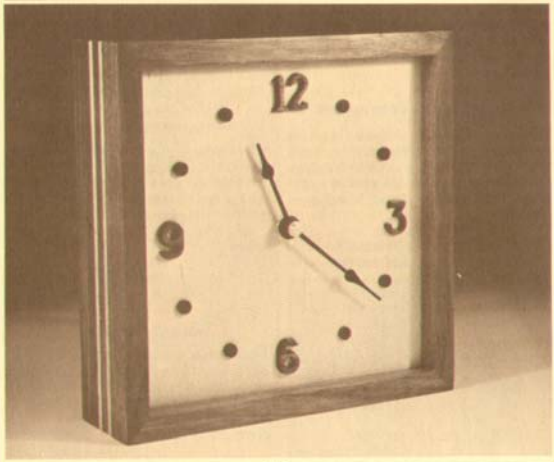


FIGURE 1

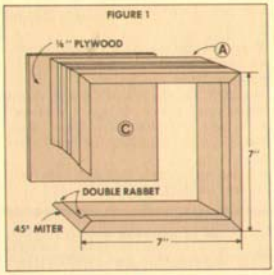


FIGURE 2

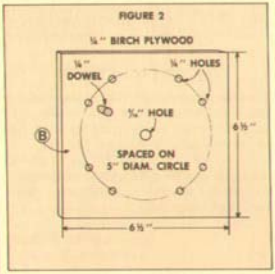
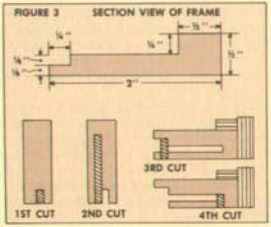
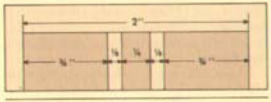


FIGURE 3 SECTION VIEW OF FRAME



LAMINATION DIAGRAM



MATERIALS LIST

A	Frame	½ x 2 - 7
B	Clock Face	¼ x 6½ - 6½
C	Back	⅛ x 6¾ - 6¾

I built this clock for my office desk. It's big enough so it doesn't get buried under all of the papers and other junk. However, you might hang this same size clock on a wall, say in a kitchen or bathroom.

The first step is to laminate the pieces for the sides. The laminating diagram shows the widths of the five strips necessary to get the 2" overall width. I used ½"-thick walnut and maple for these strips. The total length of the laminated piece should be about 30". This allows for the four 7"-long sides, with a little extra for cutting the mitered ends. After this lamination is glued up and dry, plane and sand it smooth.

The next step is to cut the double rabbet for the clock face and the back (Fig. 3) along the entire length of the lamination. The third and fourth cuts are a bit tricky. It's best to clamp a hold-down strip to the fence to prevent the workpiece from tipping during the cut. (On a radial-arm saw, this profile can be achieved by making a series of overlapping grooves with a dado set.)

Now you can cut off the four 7" sides and glue them together (I used a band clamp) checking to make sure it's square. When the frame is dry, final measurements can be taken for the clock face. This face is cut from ¼" birch veneer plywood.

For the face numerals I was able to purchase walnut numerals at a local store. (But I think they're available nation-wide.) I fastened the numerals to the plywood with epoxy (two-part) glue. The eight dots are ¼" walnut dowels that extend about 1/16" from the face of the clock. (Other options: metal or plastic numerals, large and small button plugs, or a 6" clock face.)

I purchased the movement for this clock from the Klockit Company. They have a nice selection of battery-powered movements (including pendulum movements), plus faces and hands. The one used here is their TW-40 Ultra Thin Movement ($8.95). For a free catalog, send to Klockit, P.O. Box 629, Lake Geneva, Wisconsin 53147.

The back for the clock is 1/8" birch plywood. It's screwed (not glued) in place with 7/8" brass round-head screws so it can be removed to change the battery in the movement. The face and case were finished separately with 1½ lb.-cut shellac.

Design: Adolph E. Peschke

Vanity Mirror

BUILD IT . . . TAKE A LOOK . . . IT'S GOT TO BE A "10"

Whenever I look at this project, the mirror shatters. But you might see a perfect "10". This vanity mirror is useful for putting on make-up or shaving (depending on your preference). And, the mirror swivels to meet you — no matter how tall or short you are.

The laminating diagram shows the widths of the ½"-thick strips that make up the frame. The frame starts out as a solid, laminated piece, 7" square, ½" thick.

Once the frame is laminated, planed and sanded smooth, the back of the frame is routed out to accept the mirror and a piece of ⅛" birch plywood (to protect the mirror). (See page 11 for the jig.)

I cut a 6" x 6" mirror from a 12" x 12" mirror tile (sold in many stores for wall mounting), using its *actual* final dimensions (plus ⅛") for routing the back.

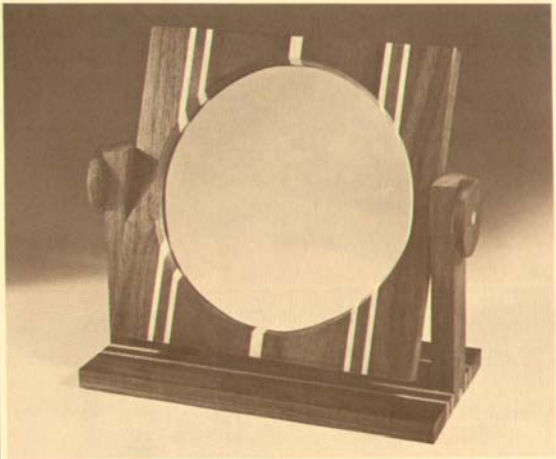
The 5½" circle in the front, Fig. 2, can be cut on a jig saw or with a coping saw. I used a band saw, cutting through the frame at the bottom (with the grain). Then, after cutting the circle, I glued the frame back together.

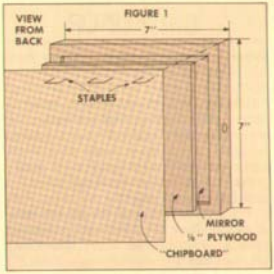
The circular opening is then sanded to a 30° bevel. This was done with the aid of the angle drilling jig shown in *Woodsmith* Number Four. I set the top of the jig at 30° and clamped the base to a drill press table. The bevel is then sanded with a drum sander.

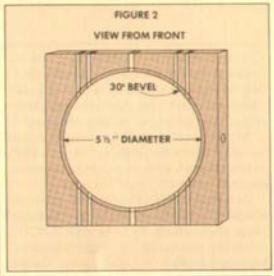
The base (C) is laminated and notches are cut for the support arms (D), Fig. 3. The arms are secured to the base with ¼" dowels. At the top of each arm a ¼" hole is drilled for the dowel on the turning knob. The 1½" diameter knob is cut with a circle cutter. Then a ¼" dowel is glued into the knob and allowed to dry. Finally, ¼" holes are drilled in the sides of the frame and the knob/dowel is glued into the frame only. (Be sure to keep any glue from seeping into the hole in the support arm so the dowel is free to turn.)

Finally, the mirror is placed in the routed back, then the ⅛" plywood; and holding all of this in place is a piece of "chipboard" stapled to the frame. I used a regular paper stapler, swinging the base out of the way to staple. ("Chipboard" is what paper companies call the cardboard usually found on the back of pads of paper. You should be able to get some from a local printer.)

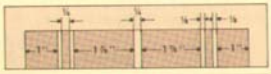
This vanity mirror is finished with *Varathane* No. 91 Clear Satin. I applied two light coats from a spray can.





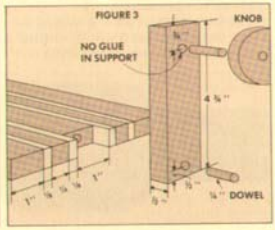


LAMINATION DIAGRAM



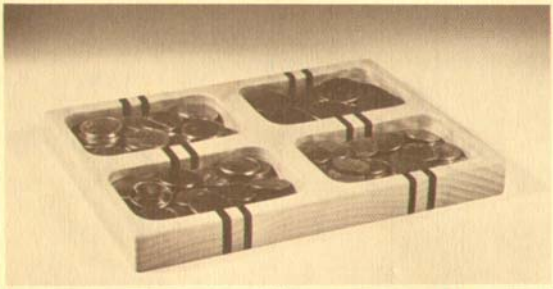
MATERIALS LIST

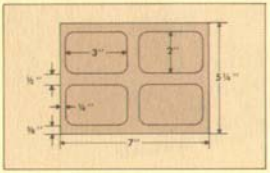
A	Frame	½ x 7 - 7
B	Support Back	⅛ x 6 - 6
C	"Chipboard"	6⅝ x 6⅝
D	Base	½ x 4 - 7
E	Support Arm	½ x 1 - 4¾

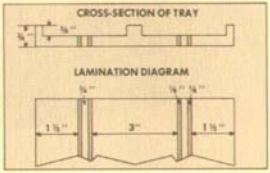


Projects For Gifts . . .

STASH YOUR LOOT







When a friend of mine saw this coin sorter-tray, he said, "That's exactly what I need. I put all of my loose change in a mayonaise jar." Now he can sort and store the extra jingle in his jeans with this little tray.

Though the tray is relatively small, measuring 5¼" x 7" overall, it holds a surprising amount of change. The first step in building it is to laminate strips of wood to the 7" width, and long enough to allow for some trim. This tray is made of ¾" maple and walnut.

The four compartments are routed out of the solid chunk of laminated wood on a drill press equipped with a ¾" straight router bit. (The jig for routing this tray is shown on page 11.)

Each compartment is 2" x 3" with ½" dividing borders in the center. However, the outside lips vary in thickness. On the side (long grain) the lips are only a ¼" wide, but on the front and back (end grain) the lips are ¾" wide for a little more strength.

Since the finish on this tray is bound to get scratched and dented, I chose *Watco* Danish Oil. (It's relatively easy to sand and repair.)

BUCKLE UP

These wooden belt buckles may not be appropriate for a three-piece suit, but they're right at home on a pair of jeans. Three variations on this idea are shown below. But there are dozens of possibilities, including relief carving (say, of initials), decorative inlays, chip carving a pattern, laminating exotic woods, and on and on.

These three buckles started out as a chunk of wood ½" x 2½"-3½". Although most of us aspire to have nice flat tummies, in reality our belt-lines are slightly rounded. So, the buckle should conform to that shape.

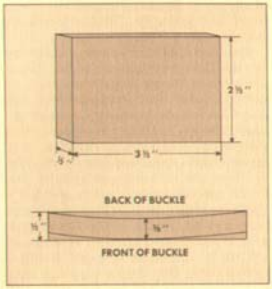
The back of the buckle is shaped to rough form on a band saw by cutting a gentle curve to a maximum depth of ⅛" (leaving ⅛" of solid wood). And the front of the buckle is also rounded to match the back.

The buckle is then sanded to final shape, removing the band saw marks and producing "soft" edges. This can be done by hand, but is much easier on a stationary belt or disk sander. (I used a portable belt sander mounted in the stand shown on page 8.)

The leather belt and the Buckle Back Ring and Hook (No. 1602) were purchased from a Tandy Leather Store. (They have all the stuff you need to make belts.)

I tried several finishes on these buckles, but I think the *Hope's* Tung Oil or *Watco* Danish Oil work best.

Design: Adolph E. Peschke



. . . Or To Sell

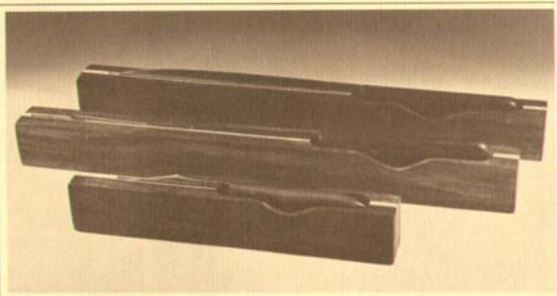
PROTECT YOUR KNIVES

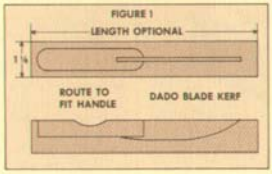
I suspect that in most households kitchen knives are stored in drawers with a jumble of other kitchen tools. Such storage subjects the blades to a good deal of abuse. The knife holders shown here are intended to protect the knife blade . . . and protect fingers reaching for the potato peeler right next to it.

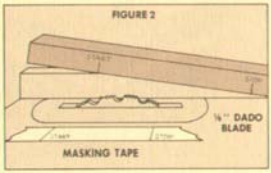
A long block is made by laminating strips of 1½"-wide walnut and maple to a 1½" thickness, and long enough to fit the knife. Once laminated, a slot is routed to fit the handle. I did this on a drill press (at 4200 rpm) with a ½" straight router bit. (See page 12.)

The groove for the blade must be cut to fit the blade. I cut this groove with an ⅛" dado blade, Fig. 2. Note: when cutting this groove, you'll probably want to make several passes, raising the blade each time. However, as you raise the blade the "start" and "stop" marks on the masking tape will change (widen).

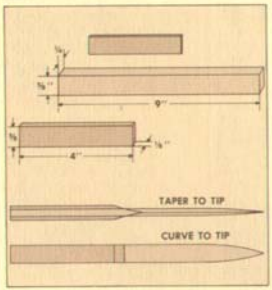
When cutting this groove, extend it into the handle slot to allow for the curve of the blade on the "start" end of the cut. (See cross-section.) To finish, these holders were given two coats of *Hope's* Tung Oil.







OPEN UP



It's my habit to save every piece of scrap that falls off the saw. One Sunday afternoon I was going through the scrap bin determined to toss some of the scraps that were too small to work with. I ran across several long, thin strips of hardwood.

Now Don, if you save these, what are you going to do with them? I sat down and studied them, trying to come up with some use. How about a letter opener? Sound okay. But will a *wooden* letter opener work?

Well, the original one I made has opened *thousands* of envelopes. And I think it does a much better job than the metal ones I've tried.

As shown in the drawing, the blade is ¼" thick. (Tight-grained hardwood — maple or birch — works best for the blade.) The blade and handles are ripped from ⅞"-thick stock, which makes the *width* of the opener ⅞". After making a couple of these openers, I decided the width looked better at about ¾".

I shaped the blade on a belt sander mounted in a stand. (This could also be done with a rasp or file.) The thickness of the blade tapers ever so slightly from the handle to the tip. The width also tapers slightly along the length, then curves gently to the tip. (During this shaping operation, test the action of the blade by folding a piece of paper and "opening" it.)

My letter opener is finished with *Hope's* 100% Pure Tung Oil.

Recipe Box

STORE RECIPE CARDS AND DISPLAY THEM TOO

Storing recipe cards is one thing, but proping them up so you can read them is yet another. That's why I decided to incorporate a card rest on the top of this recipe box.

The first step is to laminate 7/8"-thick strips of walnut and maple to a width of at least 4 7/8". This laminated piece is then resawn and planed, yeilding two ¼"-thick boards.

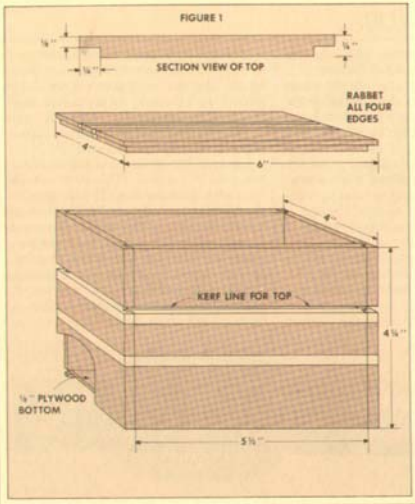
Cut the four pieces for the front, back and sides, and cut rabbet/dado joints (see next page) to join them. Also, cut a groove in the front and back piece (not the sides) for the bottom. Then glue these five pieces together.

Next, the top is trimmed and rabbeted to fit the box. After the top is glued on, the four corners are rounded. To cut off the lid, adjust the height of the blade and the fence (on a table saw) or the arm (or a radial-arm saw) to cut along the top ¼" maple lamination, making four cuts — one side at a time.

Trim the card support (E) to a 3" width, centering the maple strips. (The waste from one of these cuts is the small strip used for the card stop, F.) Use a dado head to cut a 30° angled groove in the box top, Fig. 5. Glue and clamp the card support (E) into the angled groove. (Clamp by wedging the support and the lid between two pipe clamps.)

The hinges are attached by cutting a slot in the back using a *Dremel* Power Tool equipped with a saw blade. (The edges along the back must be chamfered to allow the lid to pivot back.) The hinge (a *Stanley* ornamental hinge) is trimmed, as shown, and fastened in the slot with epoxy glue.

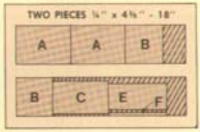
This box is finished with three coats of 1½ lb.-cut shellac and a coat of carnauba furniture wax.

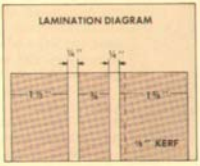


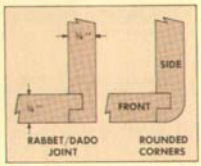
MATERIALS LIST

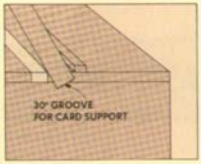
A	Frnt & Bk.	¼ x 4⅛ - 5¾
B	Sides	¼ x 4⅛ - 4
C	Top	¼ x 4 - 6
D	Bottom	⅛ x 3¾ - 5½
E	Card Spt.	¼ x 3 - 6
F	Card Stop	⅛ x ¼ - 6

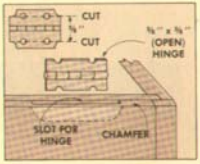
CUTTING DIAGRAM





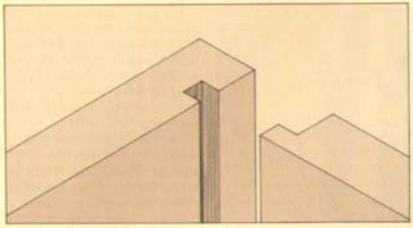






Joinery Techniques

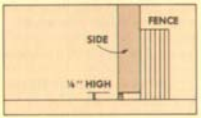
RABBET/DADO JOINT

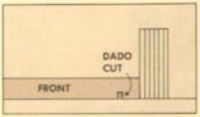


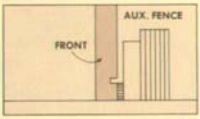
The dado/rabbet joint really isn't a proper glue joint. But, because of its locking qualities, it's certainly better than a straight butt joint. It is commonly used to join a drawer back to the sides. And, it's one of the few joints that can be used on very thin boards.

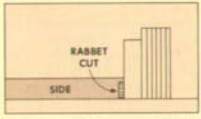
The bare-faced tongue left by cutting the rabbet should be approximately square, and sized according to the thickness of wood you're using. (Up to ½" thick, I use an ¼" tongue; and for ¾" thick or more, I use a ¼" tongue.)

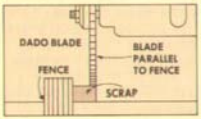
The top row of drawings shows how to cut the joint on a *table saw*. On a *radial-arm saw*, make the first cut with the blade parallel to the fence (using a piece of scrap to set the distance.) For the second cut, the blade is perpendicular to the fence and the depth is set on a try-piece.

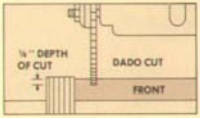


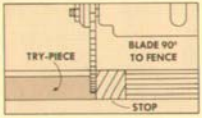


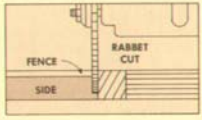












TECHNIQUES FOR GLUING-UP LAMINATIONS

All of the projects in this issue are made with laminated pieces — a nice way to put to use those narrow scraps of wood that aren't wide enough for anything else.

However, there are some problems with laminating; the worst of which is trying to keep the surface of the laminated piece in line (avoiding the "washboard" effect.)

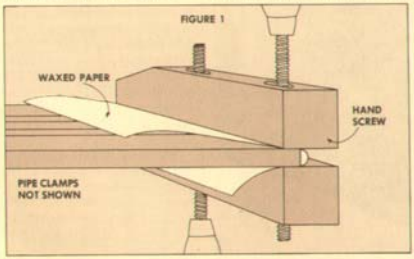
There are two clamping procedures I use, depending on the size of the lamination.

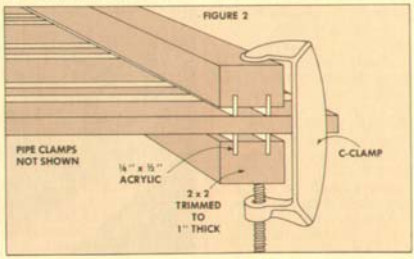
If the lamination is relatively short (and narrow), I use the method shown in Figure 1. I pull the pieces together with pipe clamps, leaving them just a little loose. Then I wrap some waxed paper around both ends and use a Jorgensen hand screws to clamp the laminations in line.

If the lamination is made up of long pieces, the center portion can still slide out of position. Alternating the position of the clamps (above and below the lamination) helps to some extent. (This also helps prevent cupping.) But many times the use of clamping bars (Fig. 2) is required.

To make these bars I cut two ¼" grooves down the length of a 2x2 to accept ¼" x ½" acrylic strips. (These are cut from acrylic sheets sold for storm windows.)

The 2x2 is trimmed to a 1" thickness to reduce the size of the C-clamp needed to secure them around the lamination.





Tools of the Trade

WAGNER SAFE-T-PLANER

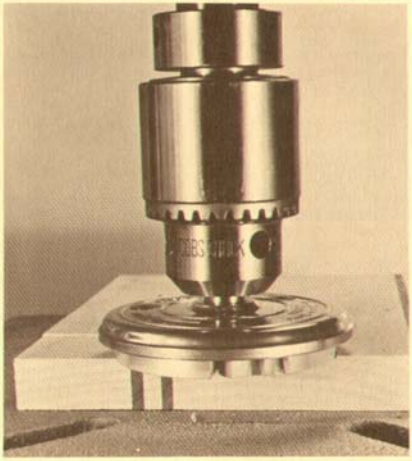
Most home workshops will never see the likes of a thickness planer. And, for many of us even a jointer is down the road a piece.

So . . . are we simply out of luck for surface jointing and thicknessing of lumber? Well, there's always the hand plane. And . . . there's also the Wagner Safe-T-Planer.

The Safe-T-Planer consists of three high-speed cutters mounted in an aluminum head. The cutters are heat treated and easily removed for sharpening.

There are two models: the DP-1 with a ½" shank for use on a drill press (shown in photo); and the RS-1 for use on radial-arm saws.

I found the Safe-T-Planer very helpful for surfacing the laminated pieces used in this issue — you don't have the chipping problems caused by grain changes that occur when surfacing on a jointer.



It's promoted as being "absolutely safe, impossible to grab or kick back." After working with it, I must confirm that statement. It's easy to work with, safe, quality-constructed and very versatile.

An eight-page instruction booklet enclosed in the package shows how it can be set up for surfacing, tenoning, rabbeting, tapering legs, making raised panels, concave cuts, rosettes, and decorative cuts. The radial saw model can even be used for edge jointing (a jig for this purpose is explained).

The Wagner Safe-T-Planer is available from Gilmore Pattern Works, P.O. Box 50034, Tulsa, Oklahoma 74150. The drill press model (DP-1) is $20.00 and the radial saw model (RS-1) is $23.00. There's no charge for postage or handling if you send payment with your order.

SEARS BELT SANDER STAND

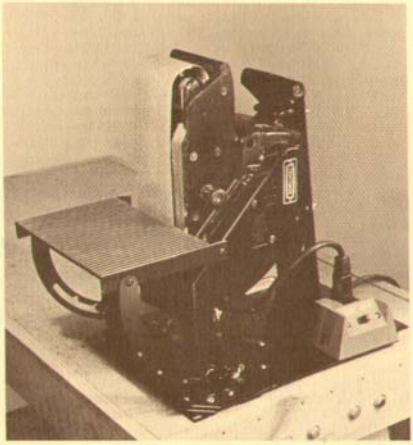
You can't have it both ways: stationary and portable. Except when you have a portable belt sander and a *Sears* belt sander stand. I've found this stand a very useful accessory to the belt sander.

As shown in the photo, the stand converts a portable belt sander to a vertical stationary sander. The stand is also designed to pivot for use as a horizontal sanding belt.

I've found it particularly helpful for hand-shaping (rounding) edges. I used it to shape the letter opener in this issue, to round the corners of the recipe box, and to round the edges of the wooden hinges shown in the last issue.

It's also very useful for quick touch-up work, and comes in handy for removing saw marks from end grain.

As with most portable tool conversion stands, this stand doesn't come close to the



performance of its stationary counterpart. You have to give up something.

In this case you give up prolonged use (the belt sander can't be left on for long periods of use). Also, the stand's light weight is somewhat of a disadvantage (it should be bolted to a secure, heavy table).

The usable sanding surface is somewhat reduced, in part because of the construction of belt sander itself, but also due to the table which encroaches on the pad of the belt sander. And finally, it's noisy (I wear ear protectors and let the dog out of the house when I'm using it).

But there is one thing you don't give up — a wad of big bucks. The *Sears* Belt Sander Stand sells for only $34.99 (with switch). And overall I think it's a useful addition to the home shop.

Routing Techniques

MULTIPLE TRAYS ON A DRILL PRESS

One thing should be said first: This technique of routing is dangerous. The workpiece must be held in the jig while the quill and bit are lowered to cutting depth. (A straight router bit will "bore" to cutting depth.) Then, while holding the quill at the cutting depth, you must let go of the wood and tighten the quill lock.

This procedure is not as bad as it sounds, but I don't want to minimize the danger.

As I let loose of the wood, the router bit just rattled around in the initial hole. The bit doesn't start cutting by itself because it tends to take the path of least resistence — staying in the initial hole.

Once the quill was locked, I routed the tray, moving the wood in a clockwise rotation.

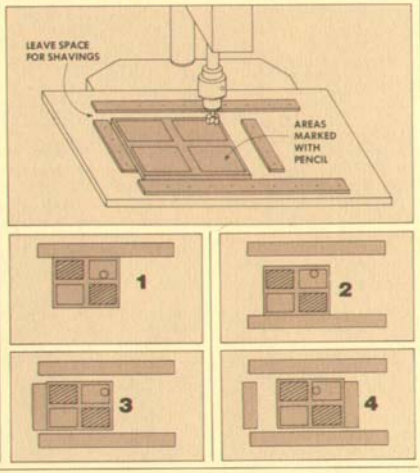
To make the jig for routing multiple trays, mark the areas to be routed on the workpiece. (The coin tray on page 6 is shown in the drawings.) Lower the bit so it barely touches the marked line. Then tack a ¼" x 1½" fence to each side in succession, as shown.

The fences should be thinner than the workpiece so your fingers can rest on the outside edges of the wood without getting jammed against the fences.

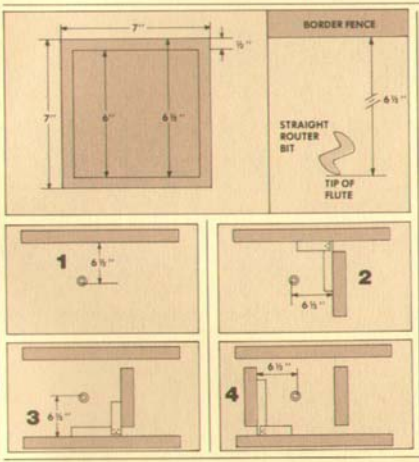
The *back right* tray is routed first, making a 7/16" depth of cut each time until final depth is attained. Then turn the workpiece 180° so (what was) the front left tray is in position. I used a 7/16" straight router bit for routing, and set the speed of the drill press at 4200 rpm.

To cut the third and fourth trays (shaded in the drawings) the entire jig must be shifted to the right and re-aligned to cut the *back left* corner.

Think safety. The router bit is exposed, and perilously close to your fingers.



SINGLE TRAY ON A ROUTER TABLE



The same type of routing technique shown above can be done on a router table. In fact, the routing operation is somewhat safer on the router table. (See *Woodsmith* No. Five for router table plans.)

Since the bit is underneath the wood, the wood acts as a guard between your fingers and the bit. The disadvantage, of course, is that you can't see what's going on until the cut is completed.

The procedure for setting up the jig is shown in the series of four drawings, below left. These drawings use the vanity mirror (page 5) as an example. As shown in Figure 1, the mirror frame is a 7" x 7" square. The area to be routed is a 6" x 6" square, leaving a ½" border all around.

To position the border fences on the router table, measure from the outside edge of the frame to the inside edge of the routed area — in this case, 6½". The first fence is then tacked or clamped in position 6½" from the farthest point on the bit. (The outline of a two-flute straight bit is shown in Fig. 2.) Use a try-square to position the second, third, and fourth fences, as shown.

To route, turn on the router and push the workpiece onto the router bit. (I used a 7/16" straight router bit, but a rabbet bit could also be used.) The entry point of the bit should be close to, but not exactly on, the outside border of the routed area (to allow for the angle of entry). It's easier to slide the wood onto the bit instead of pushing straight down, setting the depth of cut for 1/16" with each pass.

Move the wood in a clockwise rotation, routing the outermost edges first, and then cleaning out the center.

Routing Techniques

ROUTING A SLOT

The routing technique shown here is the same one I use to make a slot mortise. (See *Woodsmith* Number Eight.) In this case, however, the technique is used to route a slot in the knife holder shown on page 7.

The jig consists of two fences — one on each side of the workpiece. To center the slot on the width of the workpiece, I use the method shown in Figs. 3 and 4.

First, the back fence is tacked or clamped to the base. Then the workpiece is held firmly against the fence and the jig is eye-balled until the workpiece is centered on the router bit, Fig. 3.

Make a trial cut, only about 1/16" deep. Then turn the workpiece around, end for end so what was the open side is now against the fence.

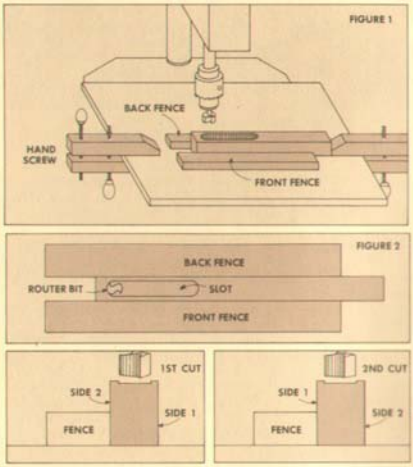
Bring the router bit down to the trial hole. If it enters the hole with a perfect fit, your eyeball is better than mine.

What I do at this point is move the jig — splitting the difference between the first and second holes.

With the jig re-aligned, I try it again. When I've finally got it, the second fence is tacked in position. This fence should be snug against the workpiece — just loose enough to permit it to slide between the two fences.

Marks are made on the workpiece where the slot is to start and stop. Then I clamp hand screws in position as end stops. (There should be enough distance between the hand screws and the fences to permit an escape route for the shavings.)

I've found it best to always start the cut at the left end of the workpiece (moving it to the left for the cut) so the action of the router bit forces the workpiece against the back fence.



BACK ISSUES

Following is a list of the contents of back issues of *Woodsmith*. Back issues are available for $2 each.

Number One: Trestle Table, Contemporary Double-Duty Tables, Tie Rack, Cookie Cooling Rack, Cutting Board, Finger Clamps, Drill Press Guides, Taper Jig, Carpenter's Triangle.

Number Two: Contemporary Chairs, Table Saw Techniques: Box Joint and Stopped Dado, Hanging Lamp, Raised-Panel Door, Technique: Mitered Half-Lap, Shaker Peg Rack.

Number Three: Canvas and Redwood Deck Chair, Redwood Garden Bench, Deck Squares, Redwood Plant Tub, Cedar Plant Pillars, Hanging Planter, Tips For Outdoor Furniture, Nine Variations On Planter Boxes.

Number Four: Roll-Top Bread Box, Angle Drilling Jigs (Three), Shop Stool, Lazy Sam Tool Storage, Box Of Drawers, Box Building Basics, Router Case.

Number Five: Router Table, Make Your Own Tools: Wedge Clamps, Taper Jig, Bow Saw, Drawing An Ellipse, Oval Frame, Toy Train and Race Car.

Number Six: Music Box, Cookbook/Recipe Shelf, Candle Sconce, Spice Box, Joinery Techniques: Rabbet and Groove Joint, Three Resawing Jigs, Wooden Christmas Ornaments, Christmas Display Tree.

Number Seven: Book/Magazine Case, File Cabinet, Miter and Spline Joinery, Router Table Techniques, Book Rack, Looseleaf Binder, Waste Basket, Tips & Techniques.

Number Eight: Joinery: Mortise & Tenon, Frame and Panel Construction, Wall-Hung Cabinet, Frame and Panel Cabinet, Panel Cutting Techniques.

Number Nine: Projects With Wooden Hinges: Adjustable Light Bracket, Jewelry Box, Lap Desk, Sweater Chest, Display Case; Joinery: Locked Miter, Joinery: End Boards, Joinery: Parallel Spline, Tips & Techniques.

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